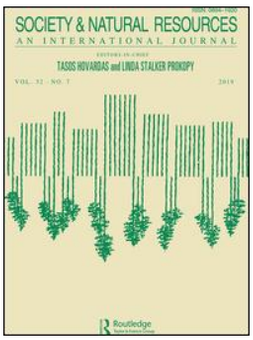

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My Place or Yours? Using Spatial Frames to Understand the Role of Place in Forest Management Conflicts

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ABSTRACT

Vegetation treatment projects in wildland urban interface (WUI) areas are highly visible to public scrutiny, which can lead to stakeholder conflicts (e.g. land managers, public) that block a treatment's implementation, and possibly expose residents to wildfire risk. This study proposes that research on environmental conflicts should account for physical spaces. We develop a conceptualization of *spatial frames* by combining theorizing on conflict frames and place attachment. The empirical case tracks the re-implementation of Forsythe, a US Forest Service vegetation treatment project in Colorado. Data include public meeting observation ($N = 11$), and interviews and focus groups with $N = 31$ residents. The findings about spatial frames illustrate that physical landscapes inscribe *retrospective* memories of past activities, and *prospective* aspirations for future actions. The temporal orientation of spatial frames (i.e., retrospective, prospective) configures frame repertoires in particular ways to heighten intractability. Land manager recommendations provide forward-looking opportunities for stakeholder engagement.

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Communication; conflict frames; environmental conflict; framing; place attachment; sensemaking; spatial frames; wildfire; wildland-urban interface

Introduction

The wildland urban interface (WUI) is a pressing concern for land managers for several reasons. The intermixing of residences within and adjacent to public lands–characteristic of WUIs–poses a wildfire risk requiring preventative land management activities. However, vegetation treatments in WUI areas can be highly visible, which subjects them to public scrutiny, and in some cases, opposition (Paveglio et al. 2009; Reiman et al. 2010). When publics oppose vegetation reduction treatments, projects risk being incompletely executed or blocked. If agencies and their stakeholders cannot reach adequate consensus, agencies may be prevented from performing land management activities, which might result in more extreme wildfire risk (Calkin et al. 2014; Meldrum et al. 2015; Remenick 2018).

This study proposes that literature on environmental conflict frames under-theorizes an important aspect of environments that parties are contesting: how the physical landscape itself informs stakeholders' frames. That is, we explore how visual, spatial, esthetic, sensory, and experiential qualities of landscapes contribute to a given party's premises

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for argument regarding land management decisions. We argue that it is these physical and *enacted* (acted out) qualities of landscapes that stakeholders reference when they *frame* an argument for why changes to the land should or should not be made. To explore how physical landscapes inform stakeholders' frames, we combine theorizing on conflict frames (Brummans et al. 2008; Davis and Lewicki 2003; Dewulf et al. 2009) with literature on place attachment (Manzo 2003; Pellow 1992; Williams and Vaske 2003), which examines how a meaningful connection to a place is grounded in ways it reaffirms one's identity (i.e., place identity), or provides a unique experience that one believes cannot happen elsewhere (i.e., place dependence). In particular, our position is not simply that certain places take on special psychological or emotional significance, but also that people act out (i.e., enact) their identities within and across physical landscapes. Specifically, a *spatial frame* encompasses both cognitive and behavioral experiences of one's identity within a certain landscape, which then informs how he or she frames that landscape when talking with others. The purpose of this study is to better understand clashing perspectives (frame repertoires) about meaningful places that arise in land management decisions, and consider how agencies might plan for these concerns in land management activities. By exploring the role of meaningful places through the notion of *spatial frames*, this study extends theorizing on environmental conflict frames, and provides recommendations for land managers.

Place Attachments: Making Sense of Disruptions to Meaningful Landscapes

Wildland urban interface (WUI) areas are likely locations for conflicts between residents and land managers because people often find such landscapes meaningful and are attached to them. Place attachment refers to the strength and nature of human bonds to a valued landscape (Halpenny 2010; Manzo 2003). Place attachment captures the idea that people develop situated identities that reflect both their social and spatial positioning; the concept pertains to both the use of a space and emotional connections that are made salient by one's personal investment in it (Greider and Garkovich 2010; Pellow 1992; Shellabarger et al. 2012; Stedman 2003; Williams and Vaske 2003). The literature on place attachment identifies several dimensions to the concept, including ways in which functional attachments can render a place unique and not easily substitutable with another place (place dependence), ways place attachments make aspects of one's sense of self salient (place identity, Proshansky 1978), ways that attachments to a place invoke feelings (place affect, Halpenny 2010), and social connections that occur due to one's interactions taking place on the landscape (place social bonding, Ramkissoon, Smith, and Weiler 2013).

Scholars examining connections between place attachment and conservation behavior have argued that strong bonds to a place predict conservation behaviors. The strength of the *attachment* to place is the crux of this work because it has been well-documented that beliefs about conservation alone rarely prompt action (Halpenny 2010). Rather, studies have found that a strong bond to a place helps to predict: pro-environmental behaviors or actions promoting sustainable uses (Halpenny 2010), a low likelihood of anti-environmental actions (Ramkissoon, Smith, and Weiler 2013), and willingness to pay for environmental services (Nielsen-Pincus et al. 2017). Further, place attachment is

strongest when associated with a specific landscape, such as a national park (Halpenny 2010).

Place attachment often becomes salient alongside other environmental issues. That is, "disruptions" to a meaningful landscape can activate place attachment, which further predicts certain behaviors and intentions (Devine-Wright 2009; Halpenny 2010). Importantly, landscape disruptions encompass a range of activities, due to industry impacting nature, mineral extraction, waste dumping, and infrastructure expansion (e.g., wind farms), and others. Both actual or potential disruptions are equally likely to pose a "threat" to one's experience of the dimensions of place attachment, and as such, can motivate action (Devine-Wright 2009). For instance, a proposed disruption to a valued landscape could threaten one's sense of identity as connected to that landscape (place identity), prompt negative and uncertain feelings (place affect), remove the ability to use a landscape to fulfill a particular need (place dependence), or make some social connections more difficult (place social bonding). Given that landscape disruptions can threaten multiple dimensions of place attachment, it is not surprising that the concept has been linked with resistance to projects that would alter a meaningful place (Devine-Wright 2009).

Fuel treatments are a type of landscape disruption that could invite opposition, especially in the wildland urban interface (WUI). On the one hand, fuel treatments might be considered a pro-environmental activity because they are motivated by a land management agency's mandate to care for the land; however, on the other hand, some might consider fuel treatments a type of "disruption" due the possibility that a proposed project would alter a landscape in undesirable ways. Therefore, a central issue for WUI areas is that residents may have conflicting perspectives on how best to manage private and public interests to protect residents and structures from destructive wildfires at the intersection of private and public lands (Paton and Buergelt 2012; Paveglio et al. 2009; Reiman et al. 2010). Residents in WUIs might be attached to the current state of their surrounding landscape and resistant to changing it (Brenkert-Smith, Champ, and Flores 2006). Attachment may be associated with conflicting viewpoints among various stakeholders (e.g., residents, land managers, municipal representatives) when desires to maintain the status quo collide with land management plans to change a landscape. Because WUI residents' attachment to landscapes is symbolic and enacted, scholars need to understand how WUI residents *make sense*, or build interpretive schemes, about meaningful places.

Framing and Making Sense of Place Attachments

Sensemaking is generally understood as an enacted (or acted out) process through which actors generate an explanation for a set of circumstances (Weick 1995). *Enactment* refers to actions that generate behavioral experiences from which people make cognitive sense (Weick 1995). The notion of enactment captures the idea that sensemaking is not an entirely cognitive act, but also is importantly based on insights we gain from taking action (Weick 1995). As such, sensemaking involves sorting through a range of observations and ordering them into a plausible account of what is happening (Weick 1995). Because sensemaking is theorized as resulting in some kind of interpretive scheme, it is

Table 1. Environmental conflict frames and definitions.

Frame	Definition*
Identity	Invoking values tied to group memberships or personal identity
Characterization	Making (typically negative) attributions about other's behaviors; placing blame on others for causing a problem
Conflict Mgmt.	Party's preferences for how to make decisions and manage the ongoing conflict process
Fact-Finding	Labeling technical information or expertise as trustworthy/acceptable (or not)
Social Control	Identifying who/what has jurisdiction over a social issue, and appropriate paths toward resolving the issue
Power	What parties say to persuade or gain leverage over other parties
Risk (Gain/Loss)	Invoking losses/gains, advantages or hazards associated with environmental actions

Note: *Definitions adapted from Davis and Lewicki (2003).

often connected with the notion of *frames*, a concept that serves as a proxy for an interpretive scheme. Frames "impart meaning and significance to elements within the frame and set them apart from what is outside the frame" (Buechler 2000, p. 41). In other words, a *frame* provides a way to structure one's experiences into a coherent storyline or explanation that gives meaning to events (Goffman 1974).

Research on environmental conflicts has yielded a substantial body of work about frames (Brummans et al. 2008; Davis and Lewicki 2003; Dewulf et al. 2009). Davis and Lewicki (2003) explained that parties mobilize frames to identify whether problems exist, and if so, to define their nature. Parties then take action based on how their frames define a problem. Parties with different definitions of a problem will likely differ in their understanding of what actions are necessary or appropriate for resolving it. Also, frames provide a common purpose that can mobilize collective action by marshaling support toward a position on the issue.

Several frames commonly emerge in environmental conflicts, including those linked with personal *identity*, *characterization* of an issue, *conflict management* methods, *fact-finding* legitimacy, *social control* over decisions about the issue, *power*, and *losses/gains* (see Table 1; Davis and Lewicki 2003).

Frames become especially important when considering how parties mobilize them to strategically position an issue and heighten intractability (Shmueli, Elliott, and Kaufman 2006). For instance, *power* frames pertain to how people understand relative positions of legitimacy in a conflict. When people perceive they are on the weaker end of a power imbalance, they are likely to view interactions with a more-powerful stakeholder as a zero-sum endeavor to maximally advance and legitimate their position (Shmueli, Elliott, and Kaufman 2006). For instance, WUI residents opposing federal agency land management activities might see themselves in a David and Goliath struggle against a powerful government institution, which can render them resistant to negotiation (thus legitimating their position) when the agency offers anything short of complete concessions. Second, and related, parties invoking a *loss* frame are more likely to work harder to prevent risking a loss, than will people seeking a commensurate gain (i.e., operating within a *gain* frame) (Elliott 2003; Shmueli, Elliott, and Kaufman 2006). Thus, if WUI residents view land management activities as stripping the landscape of what they love (i.e., a loss frame), they will likely be especially motivated to halt the operation; conversely, residents who support the project to an equal extent are not likely to fight as hard for its implementation. Further, disputants become increasingly polarized when their *fact-finding* frames diverge; that is, when they disagree about which sources of information

are legitimate for justifying their positions, and discount the expertise from which the other party draws its conclusions (Kaufman Gardner, and Burgess 2003; Shmueli, Elliott, and Kaufman 2006).

Implicit but under-explored in the above examples of frames is the role of the physical landscape itself. In particular, we need to better understand how the meaningfulness of a space might contribute to, for example, parties talking on a loss frame, or adopting an unyielding orientation toward other stakeholders with an interest in a landscape.

Spatial Frames and Repertoires

Given the meaningful and enacted (i.e., acted out) connections people develop with specific landscapes, as explained in the place attachment literature, physical spaces become the material embodiments of sets of meanings and experiences (Stedman 2003). A spatial frame, like the frames discussed previously, is a discursive construction that sets some aspects of experience within the frame and other aspects outside of it (Buechler 2000). A spatial frame may be unique from other frames because it is both cognitive and behavioral; that is, it captures ways that meanings are not only discursive, but also material (comprised of terrain, physical) and enacted (acted out). Moreover, symbolic spaces inscribe meaning, and as such, it is possible that spatial frames inscribe people's experiences of *specific* rather than general landscapes (Halpenny 2010). Spatial frames might emerge in conversations as parties reference certain contested landscapes when talking about their personal experiences, or when recalling memories of changes to that space. Considering place attachment theory, we might expect that spatial frames would be resistant to modification because they are grounded in the bodily enactment of not only a landscape, but one's sense of identity as acted out within the landscape. That is, places become meaningful when people act out who they are through activities they perform in a landscape (i.e., place identity). For example, a hiker might come to value her "outdoorsy" identity from hiking on various trails and describing who she is to others in terms of her hiking experiences (e.g., "I'm an outdoorsy person," "I am a hiker"). A landscape also becomes particularly meaningful when people perceive that it is *not substitutable* (i.e., place dependence) for certain activities. We might consider, then, that memories of and connection to a landscape could render the imagery of a space resistant to change. One might be reluctant to imagine a certain meaningful landscape taking on a different look resulting from land management activities (e.g., through removing trees, etc.), especially those that would change one's physical enactment of it (e.g., seeing a densly-timbered trail as less desirable with fewer trees). For instance, the hiker mentioned previously might evince place dependence if she felt that a specific trail was an integral part of her outdoorsy identity, and other trails were not similarly validating. From these assumptions, our conceptualization of *spatial frames* is based on the notions that some physical landscapes are *enacted* and *non-substitutable*. In sum, residents might enact landscape-specific activities (e.g., hiking) to reinforce valued personal identities, generate lived experiences and memories in particular spaces, and come to see a landscape through those physical experiences. Thus, we ask:

> RQ 1: How do contested physical landscapes inscribe meaning contributing to spatial frames?

Spatial frames do not stand alone; they likely incorporate other conflict frames (discussed previously) into *frame repertoires*, or sets of frames that act together toward multi-party agreement or intractability when invoked (Brummans et al. 2008; Shmueli, Elliott, and Kaufman 2006). For example, meaningful connections to a landscape might reflect individuals' sense of place dependence, or that a landscape is not substitutable for certain identity-affirming activities. For instance, residents might perceive that removing trees would make an area of forest less desirable for hiking, resulting in viewing proposed changes (e.g., removing trees via fuel treatment) as a *loss* of something about the landscape that they value (i.e., a risk/loss frame). Further, an *identity* frame might become salient depending on how strongly one feels a landscape is important for maintaining a valued personal identity (i.e., place identity). Thus, we might expect to see that a spatial frame consists of a repertoire of other frames (e.g., risk, identity, etc.), prompting the second related research question:

> RQ 2: How do spatial frames incorporate (or explain party's invoking of) other conflict frames (e.g., risk, identity, power, etc.)?

Methods

Case Description

This study follows the re-implementation of a US Forest Service (USFS) vegetation/fuels management project called Forsythe, taking place adjacent to Nederland, a small Colorado mountain town (population 1,900). The nearly 4,000-acre project was primarily aimed at improving the landscape's resistance and resilience to catastrophic wildfires. Vegetation treatments (also called fuel treatments) refer to removing trees from an area to either thin the density of the tree stand or to clearcut patches of the forest, depending on forest type. The USFS had completed other vegetation treatments near Nederland prior to Forsythe. One example was the Sugarloaf project, which primarily entailed thinning and prescribed burning on a similar scale as Forsythe. The proposed work associated with Forsythe included such fuel treatments as clearcuts (removing all or most trees from a large area), patch cuts (smaller-scale versions of clearcuts), thinning (selectively removing trees from a stand), and prescribed burning (intentionally burning a landscape to clear built-up vegetation debris). The project was approved through the National Environmental Protection Act (NEPA) process. However, in 2014, the USFS accomplished its first phase of the project—referred to later as *Forsythe I*. This initial treatment was a large clearcut in a highly visible area, which prompted opposition from a vocal, organized group of community members and landowners which call themselves the Magnolia Forest Group (MFG). MFG members argued that thinned and clearcut areas ruined the forest esthetic, diminished recreational opportunities and quality of life, and reduced property values, among other objections. They pointed to the Forsythe I clearcut as an example of what they expected the second phase of the Forsythe project, now referred to as *Forsythe II,* would look like. The local USFS Ranger District office re-assessed and approved the Forsythe II project in July of 2017; this study tracks the ongoing controversy around it.

Data Collection

Observation and interview data were equally important in informing the findings for this study. We worked iteratively (back and forth) between observation and interview datasets to unravel specifically community residents' (not land managers') enacted experiences, meanings, and frames associated with specific contested landsapes within the Forsythe II treatment area. Data came from observing public meetings, and analyzing researcher fieldnotes, documents, and available PowerPoint slides from public meetings. To probe community member views expressed at public meetings, we requested follow-up interviews with meeting attendees in either an individual or group setting depending on participants' preferences and schedules.

Public Meetings

We gathered field notes and other documentation (e.g., meeting summaries, PowerPoint slides) from 21 public meetings taking place over three years regarding Forsythe II. The research team took handwritten field notes during each meeting we attended, typed our individual notes shortly after, and shared them with each other in a common folder. These data comprise over 100 pages of single-paced documents and notes in addition to five multi-slide PowerPoint presentations.

Individual and Group Interviews

To unpack themes we observed in the public meetings, and probe for depth, we conducted follow-up individual and group interviews with $N = 31$ residents. All interviewees were white, identified as male ($n = 14$), or female ($n = 17$) adults. Participants had lived in the Nederland area for two to 42 years ($M = 16$, $MDN = 18$). Four interviewees had professional backgrounds in wildland firefighting or forestry practices. None of the interviewees held neutral opinions about Forsythe II; they were either in support of Forsythe II ($n = 9$), or opposed to it ($n = 21$). Of those who opposed the fuel treatment, most identified as members of Magnolia Forest Group ($n = 12$), while a smaller group were not part of MFG ($n = 8$).

First, we conducted four group interviews (including 3–5 participants each) with $n = 19$ participants. Group interviews included a mix of participants who opposed and supported Forsythe II. Group interviews allow for insights cued through interaction (Hennink, Hutter, and Bailey 2011). However, while some participants might speak candidly with their peers, others might find it uncomfortable to freely express themselves in a group. We also conducted individual interviews with $n = 12$ residents who preferred to privately express their views, and/or to accommodate their schedules. The interview protocol asked residents to speak about: (a) their attachment to the physical landscape and its uniqueness (if any), (b) how they viewed the health of the forest, (c) what USFS's role should be in managing the land, (d) their 'social values' of living in the WUI (i.e., an *in vivo* term raised in public meetings referring to special or intangible qualities of living there), and (e) their expectations for firefighter response if a wildland fire occurred. We obtained informed consent before conducting all interviews. Interviews were recorded and lasted 45–120 min, although group interviews were

typically longer because they included more participants. Interview audio was transcribed into 340 single spaced pages.

Data Analysis

We analyzed data using an iterative process of working back and forth between theory (conflict frames and place attachment theory) and emerging findings from the data (Tracy 2013). To understand how physical spaces inform resident perspectives in a conflict, we examined data pertaining to two research questions: *How do contested physical landscapes inscribe meaning contributing to spatial frames?* And, *how do spatial frames incorporate (or explain party's invoking of) other conflict frames (e.g., risk, identity, power, etc.)?*

We analyzed data in two phases: The first phase employed primary-cycle coding, leading to a codebook (Tracy 2013). Each author read the transcripts individually line by line, labeling what people talked about regarding the physical landscapes and multi-party land management decisions. We used both *deductive codes*, which we derived from theory and research, and *inductive codes*, which emerged from the data (Hennink, Hutter, and Bailey 2011). We then read meeting fieldnotes and other documentation to capture broader themes and look for connections with interview data.

In the second phase of analysis, we used secondary-cycle coding, which involved clustering the primary codes under more abstract interpretive concepts (Tracy 2013). Additionally, we matched residents' sentiments with two specific landscapes they identified in meetings and interviews. Findings from place attachment literature conclude that strong place attachment often embodies a connection to a specific (rather than general) landscape (Halpenny 2010). Thus, using place attachment theorizing to inform our methods, we looked for specific meaningful spaces that arose in our data as particularly positive or negative examples of land management activities associated with the Forsythe project. We identified the Forsythe I treatment area, inscribing mostly opposition views toward Forsythe II, as well as unit 151, a highly visible treatment from the previous Sugarloaf project (hearafter 'Sugarloaf 151'), inscribing mostly positive views about that specific landscape, and fuel treatments in general. We separated residents' descriptions of positively-valenced examples (i.e., in support of Forsythe) from the negatively-valenced examples (i.e., evincing opposition). Within those groupings, we identified emerging frames (e.g., loss, gain, power, fact-finding, identity, etc.). Finally, we read the data corresponding with the negatively-valenced frames to identify which ones consistently appeared together. This step enabled us to identify spatial frame repertoires. We repeated the process with the data associated with the positively-valenced frames. Table 2 presents the thematic frames comprising the findings.

Reliability and Validity Checks

We took steps to ensure the credibility of our findings (Tracy 2013). To ensure intercoder reliability throughout the coding and analysis process, the research team met periodically as a group to compare our individually coded transcripts. We walked through the transcripts line by line comparing our codes, and reconciling instances in which our

Table 2. Thematic frames of participants opposing and supporting the Forsythe II fuel treatment plan.

	Oppose	Support
Contested Landscapes and Aggregated Place Attachments	Forsythe I (a treated area): Residents wanted to stop future fuel treatments due to negative feelings about Forsythe I.	Sugarloaf 151 (completed fuel treatment): Played role in stopping a wildfire; neighbors reported initial opposition followed by positive feelings toward the space.
Temporal Orientation	Retrospective: Frames about past actions on the landscape participants deemed unacceptable	Prospective: Aspirational frames about what participants would like the landscape to become
Themes	Violated expectations Degradation and loss Prior land management mistakes	Resilience Community safety

coding differed. As the coding process and analysis progressed, we updated the codebook to add new distinctive codes and to combine and re-name codes we felt were redundant. To check the validity of our findings, we emailed a copy of the full manuscript to each interview participant, requesting that they let us know within two weeks whether the findings resonated with their experience, if they noticed factual errors, had anonymity concerns due to deductive disclosure, or had additional feedback. We revised the manuscript to incorporate relevant input.

Findings

The first research question asked: *how do contested landscapes inscribe meanings contributing to spatial frames*? Spatial frames anchored meaning. Residents frequently mentioned two specific fuel treated landscapes to justify their opposition or support toward Forsythe. Those who opposed the project often invoked the Forsythe phase I fuel treatment site (a large clearcut) as an example of why the slated fuel treatment should not proceed, while residents supporting Forsythe II frequently invoked the Sugarloaf 151 fuel treatment site (primarily a thinning project, rather than a clearcut) as a reason why the slated treatment was necessary and desirable. These sites anchored sentiments of opposition or support for Forsythe II differently. This section explores opposition followed by supportive frames.

Opposition—Retrospective Inscription of Spatial Frames in the Forsythe I Treatment Area (RQ 1)

Residents who opposed the project, particularly those belonging to MFG, often invoked the completed Forsythe I fuel treatment as an example of why the slated Forsythe II fuel treatment should not proceed and as an example of why residents were so active in attending meetings to oppose Forsythe II. Residents valued the Forsythe I landscape prior to its fuel treatment; however, the treatment altered the landscape (and their uses of it) in ways they felt were drastic and undesireable. Forsythe I was a living example of what they did not want, and residents anticipated that the slated Forsythe II project would net similar results at a larger scale. Overall, residents who opposed the fuel treatment plan inscribed this contested landscape with memories of past land management

actions and meaningful associations, including: (a) degradation and loss, (b) violated expectations, and (c) prior land management mistakes.

Degradation and Loss

Residents who opposed Forsythe II made spatial sense of fuel treatments by framing them as contributing to a loss of what the landscape once was. They noted several changes arising not only from the fuel treatments themselves, but also from the increased recreational usage of the public lands surrounding Nederland, and an increase in illegal camping by transient individuals from the nearby metropolitan area. Residents said they were drawn to the area due to its beauty, but felt shocked by how the previous Forsythe I treatment had changed the area, and the increased recreational traffic. Residents often invoked a *loss* frame when discussing their emotional reaction to these landscape changes. Katherine (resident, 29 years) said:

> I feel literal grief at the loss of this forest every day. I understand the scientific perspective, but it's something different for me, living [near] this beautiful forest. It's now gone [due to Forsythe I], and, I think, unnecessarily.

Residents who opposed Forsythe II also indicated overall resistance to Nederland's population growth, which many saw as a threat to the town's character. Brett (resident, 42 years) said, "Forsythe II is just another instance of growth and expansion. That's all I can see it as." Similarly, Jonas (resident, 35 years) said, "The woods [are] part of… your soul in every breath that you experience, and that is worth preserving." In effect, these residents saw vegetation treatments as being linked with increased use of the area, even though the USFS explained to residents that the treatments provided strategic advantage for firefighting, and that new roads provided additional fire evacuation (or egress) routes for difficult-to-reach homes. Sarah (resident, 27 years) countered that reasoning saying, "if people want multiple egress routes then they should go live in a suburb," using "suburb" pejoratively.

The increased usage of the area was mostly attributable to residential and recreational traffic from the nearby metropolitan area. However, related to increased usage was the occurrence of persistent transient encampments. As Jake (resident, 3 years) explained, "Now, [Forsythe I area], I don't want to be up here. Why? Because of all the homeless people." Sarah (resident, 27 years) referred to the same issue, saying, "It's trashed." Many residents identified the transient population as a significant fire threat because the group regularly lit campfires and left them unattended in wildfire-prone vegetation. A notable example was the 2016 Cold Springs Fire–an illegal, improperly extinguished campfire that burned 28 acres near the Ridge Road neighborhood and Sugarloaf 151 treatment site, destroyed eight homes, and caused $2.43 million in damage (Cabbert 2016).

Violated Expectations

According to several Nederland residents, the USFS's previous Forsythe I treatment violated their expectations of how they thought the treatment would look. Residents said they were prepared for fuel treatments to alter the landscape, but were shocked at the magnitude of the changes—the clearcuts were larger, and the removal of trees more

jarring, than they expected. Further, reminders of vegetation treatments—namely, "slash piles" of tree limbs and logs—remained on the landscape for years. Residents noted:

> This isn't attractive to look at, it doesn't make it desirable to hike back there anymore, but that's how [the USFS] chose to do it (Jake, resident, 3 years).

> We'd hike those trails almost on a daily basis, even if it was raining or … heavy snow, we would … enjoy being out in nature … That was hugely important to us. Part of that has been taken away [by Forsythe I] (Anne, resident, 20 years).

Residents were deeply invested in the landscape, with many having lived in the area for several years. These residents felt their time spent there translated into deeper knowledge about the area than land managers possessed. Temma (resident, 22 years) said:

> … when [a land manager] says, "Well, we're just gonna cut down this forest; it's for the health of the forest, and it'll be good for you," without consulting us, it's a slap in our face. It's like, "How do you know what's good for us? We live there. We understand this forest a lot better than you do. Our lives are tied up in it."

Quotes like Temma's evince a *fact-finding* frame in which residents suggested that their everyday, enacted experience of the landscape (i.e., "our lives are tied up in it") was more legitimate than the knowledge land managers (e.g., ecologists, silviculturists, etc.) employed in planning and implementing fuel treatments. Also important in Temma's statement was the "slap in the face" language indicating a *social control* frame; residents felt ownership over the landscape and wanted more of a say in managing it.

Prior Mistakes

Residents also noted their concern that the USFS did not exercise enough oversight over the contractors who were performing the treatments, and, as a result, the contractors cut trees in ways residents thought were the "incorrect" way to manage the vegetation. Those who opposed Forsythe II often cited *prior mistakes* as reasons they resisted future land management activities.

> [The USFS] violated previous recommendations and prescriptions that had gone through a public comment period–they went ahead and clear cut every large tree around [a meaningful] aspen grove (Katherine, resident, 29 years)

> I'm very nervous about [Forsythe II] because what we saw in Forsythe I … was that the contractors didn't do what the [fuel treatment plan] specified. All kinds of things were done wrong. I don't have a lot of faith that, even if we got [what we asked for] from the Forest Service, that it would actually happen [as planned]. My preference would be to let the forest do its thing. (Jerry, resident, 20 years)

The inscription of prior mistakes was connected to the inscription of residents' violated expectations. There was a lack of trust in the USFS due to the perception of previous work being incorrect or misrepresented to the public.

Opposition: Retrospective Spatial Framing Repertoires and Place Attachment (RQ 2)

The second research question asked: *How do spatial frames incorporate (or explain party's invoking of) other conflict frames (e.g., risk, identity, power, etc.)?* Overall,

residents who opposed Forsythe II inscribed contested landscapes with their memories of degredation and loss, violated expectations, and prior land management mistakes. Residents inscribed sense onto the landscape *retrospectively* based on their prior experiences there—focusing on what they "lost" and what the area "used to be" like. Importantly, these retrospective spatial frames reflected an *individualist*-orientation focused on personal identities, needs, and responsibilities (e.g., a focus on individual experiences of connections to the landscape, "our lives are tied up in it," "we hike those trails daily," "my preference is to let the forest do its thing"). Spatial sense was grounded in *place identity* when it reflected how residents enacted their sense of self across the landscape. In particular, when residents described *degradation and loss* of meaningful places, they invoked ways that Forsythe I's changes to the landscape altered the personal identity they built while living there. Further, some residents saw the loss of trees as a loss of personal refuge—a key reason for living there in the first place. The presence of transient persons reminded them of the metropolitan area they were happy to have avoided. The overall increased usage of the area led some residents to lament that their town was turning from a mountain community (i.e., where only the rugged thrive) into an extension of the metropolitan area (i.e., where anyone can live), as evinced by quotes like, "if you want multiple egress routes, go live in a suburb." Thus, there was a strong loss frame associated with perceived threats to place identity.

When residents talked about *violated expectations* and *prior land management mistakes*, their spatial sense was grounded in *place dependence* through an argument that specific places should be managed in specific ways. That is, because their personal identities were expressed through ways they moved and lived within contested spaces, they wanted the look of the space to align with their regular enactments of it. Place dependence became salient when residents invoked frames in such a way as to *narrow* the scope of what they saw as acceptable changes to the landscape. For instance, public meetings opposition residents also invoked *social control* frames to request more say in land management decisions for public lands near their property. Residents wanted either more veto power to reject fuel management projects, or to suggest treatments with more esthetic value even if they did not fit the USFS's vegetation objectives.

Support—Prospective Inscription of Spatial Frames in the Sugarloaf 151 Area (RQ 1)

Several residents who supported Forsythe II invoked the Sugarloaf 151 fuel treatment as a reason why the slated Forsythe II treatment was necessary and desirable. Sugarloaf 151 was first mentioned by a USFS land manager in a public meeting, and the site emerged as important in our subsequent interviews with local residents who supported Forsythe II. In particular, in an early public meeting, a USFS land manager described how Sugarloaf 151 was originally intended to enhance forest resilience after a mountain pine beetle outbreak disrupted local forests in the early 2000s killing large numbers of trees. However, in 2016, the Cold Springs Fire threatened the town of Nederland, particularly, the Ridge Road neighborhood. The Sugarloaf 151 fuel treatment played an important role in the firefighting effort—the treated site provided a fire break (open area that slowed the fire), and was an important location to stage firefighting resources.

Residents inscribed the Sugarloaf 151 and Forsythe I and II landscapes with meanings associated with enhancing 1) forest resilience and 2) community wildfire safety.

Forest Resilience

In contrast to residents who opposed fuel treatments, Forsythe II supporters talked about how previous land management work produced a healthier forest and esthetically pleasing spots in the community. Importantly, interviewees who justified their support for Forsythe II through invoking Sugarloaf 151, often also viewed the Forsythe I treatment area positively. Several residents employed a *gain frame* to explain how the fuel treatments have brought in desirable species (e.g., aspen) and ecosystem diversity that was not present before the treatments. For example, Erik (resident, 10 years) described improvements he saw from the Forsythe I treatment:

> [Since Forsythe I] you go up into [that area], and you have the little ponds, surrounded by some forest, the big aspen groves that are now coming back, the open meadows, the views, the diversity of it, where you can actually experience different, almost mini-ecosystems in one hike.

Many residents (both for and against Forsythe II) identified with their ability to use the public land around their property for recreational activities like hiking. Those who supported Forsythe II recognized the beauty of the land after fuel treatment activities. They expressed willingness to take a longer-term view by remaining optimistic that the treated areas would be healthier in the near future. As Will (resident, 32 years) said, "[Forsythe II is] encouraging wildlife and just making a healthier forest … I can see [the area] in five years, and it's gorgeous, as opposed to just seeing a wasteland."

Community Safety

Residents who supported Forsythe II mentioned larger goals of the project, namely to protect the community from wildfire. Supporters used forward-looking, aspirational language about community safety, again indicating a *gain frame*, and further contrasting with the *degradation and loss* language used by those opposing Forsythe II. For instance, Justin (resident, 4 years) spoke to a bigger picture perspective, saying "we need to keep the community safe and be responsible to our neighbors and the forest." That sense of collective responsibility translated into seeing Forsythe II as a way to protect the community from wildfire. Justin went on to say:

> I'm in support of Forsythe II because the goal of the treatments is to enhance public safety. These fuel treatments create areas where aerial retardant will be more effective; they make a difference in slowing down the fire; and they set the stage for firefighting resources to actually make a difference. They are necessary because in a WUI area, the forest can't be left to manage itself. We have to actively manage it because we are living in it, and interfering with its ability to let natural processes take place. We have to make decisions about it so we can make sure people who live here are safe.

Because residents faced ongoing fire risk, they felt vegetation management must be done for the greater good of public safety. Similarly, climate change was invoked as a reason to plan for future natural but possibly dangerous processes like wildfire, and to support Forsythe II.

It is important to note that some interviewees who supported Forsythe II said they did not always look favorably on Sugarloaf 151 or the work performed at the Forsythe I site. Their reasoning was similar to that of Forsythe II opposers. However, the Cold Spring fire made community safety salient for them, and shifted their opinions on Forsythe II. An exemplary quote from Jill (resident, 19 years) explained:

> A big concern of people is just they saw [the Forsythe I treatment], and many people were very upset by that. I was, too. I still look up there every day, and I'm just like, "Gosh, that's so ugly. I can't believe they just cut that all down" […] The thing is, [a firefighter] explained to me, "this is a staging area where we can put our crew and keep them safe in there." Then it made more sense, what they did. […] Yes, we want to keep our firefighters safe and be able to put them in a safe place. I think I kind of accept that a little bit more [after that conversation].

Jill's comment suggests that support for Forsythe II was not uniformly expressed through a *gain frame*, but rather through oscillating between *loss* and *gain frames*. Thus, residents could experience, empathize with, and express a sense of loss regarding changes to a valued landscape. However, at the same time, they held an understanding of how the benefits of those changes (e.g., community safety, forest resilience) impacted the *collective* good of their community, and even outweighed the changes (or losses) to their *individual* experience of a valued landscape. An important caveat for this finding was that, for Ridge Road residents, the treated Forsythe I area was among their valued landscapes, but it was not their primary one. This subtle separation from that landscape possibly made the oscillation between loss and gain frames easier for Jill and her neighbors than it might be for those living directly adjacent to the Forsythe I site.

Support: Prospective Spatial Framing Repertoires and Place Attachment (RQ 2)

Residents who supported Forsythe II inscribed contested landscapes with a forward-looking vision of how the vegetation treatments would enhance ecosystem resilience and bolster community safety from wildfire. Residents inscribed sense onto the landscape in a *prospective* manner based on results from previous vegetation treatments (e.g., Forsythe I brought ecosystem diversity), and their understanding of the community's wildfire risk (e.g., "we need to manage the land because we live here and it cannot manage itself"). These prospective spatial frames suggested a *collectivist* orientation highlighting gain frames—that is, what the community would gain from fuel treatments in terms of ecosystem diversity and wildfire safety. Residents supporting Forsythe II appeared to hold equally strong *place identity* as those who opposed the treatments. However, supporters' future-oriented *gain frames* were grounded in acceptance of and positive anticipation for landscape changes that would further what they saw as their forest resilience and community safety needs. Supporters' acceptance of landscape changes was in contrast to opposers' resistance to change arising from a predominant loss framing. In similar manner, supporters' acceptance of future landscape changes appeared to be connected to *place dependence* in a different way than was opposers' expressions of it. In particular, supporters appeared to expand their range of ideas about suitable uses for the landscape. This suggested that supporters' notions of place accepted that their attachments were not static, and that their bonds did not diminish in light of landscape changes because they viewed them with a gain frame.

Discussion and Recommendations

This study's findings fleshed out how inscriptions of meaning on landscapes, what we refer to as *spatial frames*, influenced stakeholder's positions on Forsythe II. Our findings contribute to literatures on environmental conflict frames, and place attachment. We close with recommendations for land managers based on our contributions.

Theoretical Implications

This study first contributes a spatial-temporal understanding of frames to the conflict frame literature (Brummans et al. 2008; Davis and Lewicki 2003; Dewulf et al. 2009). Our study contributes to this work by considering place attachment, and in doing so, shows how conflict frames can be inherently grounded in spatial-temporal meanings (see Shellabarger et al. 2012 for a similar argument). That is, those who opposed a decision primarily viewed previous vegetation treatments as evidence of harm to the landscape and their attachment to it, whereas those who supported the treatments imagined something different and better for that landscape. Framing repertoires also reflected the temporality of frames–with opposers focusing on the past, and supporters focusing on the future. Overall, our study suggests that those who oppose an environmental disruption due to land management projects might have a more varied framing repertoire than those voicing support. This finding supports conclusions from the conflict frames literature suggesting that opposers will expend more effort to fight a project than will supporters in pushing for its implementation (Shmueli, Elliott, and Kaufman 2006). Our findings extend this work by showing how opposers cultivate a more varied framing repertoire to enhance opposition efforts.

Second, this study complements work by Paveglio and colleagues (2009) in providing a different way to think about how residents make sense of risk in wildfire-prone areas. Our study suggested that place attachment was grounded in residents' wildfire risk perceptions through illustrating how spatial frames inscribed meaning specifically around what residents perceived that they "risked" losing, namely, access to the types of activities the landscape offered currently or before treatment activities, and to experiencing a particular forest esthetic (e.g., timbered). In contrast, supporters expressed concerns that they "risked" losing their community to a wildfire, and that vegetation treatments could help avoid such an outcome. These conflicting frames set a trajectory for how residents perceived and responded to vegetation management projects.

Third, in this study we saw that *place identity* was associated with either support or opposition toward an environmental decision. However, our opposition findings suggested that *place dependence* was primarily associated with opposition toward a land management decision, especially if that decision was tied to a loss frame (Devine-Wright 2009 for similar argument). Conversely, our finding suggest that place dependence, when associated with a gain frame, might increase the perceptions of suitable land uses. This possible relationship between place dependence and loss/gain frames might be a fruitful area of future research.

Recommendations for Land Managers

In closing, our study's findings point to several recommendations that account for the spatial-temporal orientations of stakeholder spatial frames. First, our findings reinforce

previous research about engaging community members early and often to set expectations about what the landscape will likely look like after vegetation treatments (McCaffrey et al. 2013; Remenick 2018). This is especially important since land managers and members of the public might hold different values for the landscape. To inform their messaging strategy, land managers might consider conducting census surveys in WUI areas where highly visible, large-scale treatments are slated. A census survey would be a valuable tool for gauging how representative certain viewpoints are in a community, as previous research has shown that those who oppose a project are more likely to engage in public meetings and resistance efforts than those who support it (Elliott 2003; Shmueli, Elliott, and Kaufman 2006). A census survey could assess residents' support or opposition to treatments, providing a range of viewpoints that might not emerge in a public meeting. Such a survey might include additional open-ended questions asking residents about their land management priorities, and specific concerns they have if a treatment is implemented or delayed. These responses can inform land managers' messaging strategies by directing them to focus on residents' most valued priorities.

Second, given our findings that residents have strong personal connections to particular landscapes, we recommend that land management agencies provide demonstration plots—exemplars of landscapes at various stages of treatment recovery—so that residents are able to form realistic expectations about vegetation recovery time and stages of growth. In particular, land managers might consider conducting tours of existing fuel treatments (if available), or developing specific demonstration plots in untreated areas. Land managers should also take advantage of visual aids (e.g., photos, informational videos, computer-generated models) to illustrate the function, logic, and recovery times for various treatments. Further, landscape architects should be involved in the design of fuels reduction projects so that the results might be more esthetically pleasing to residents.

Finally, we recommend that land management agencies build volunteer opportunities into land management plans to promote a forward-looking framing repertoire. Agencies might design volunteer opportunities around areas in which they are already short-staffed, and could include: letting residents patrol trail systems, monitor transient campsites for illegal campfires, and observe government contractors' implementation of fuel treatment activities. A volunteer citizen patrol group could address the issue of illegal campsites that residents discussed in the destruction frame. Thus, this intervention fits with how people practice their lives in a space (e.g., hiking, place attachment), by building volunteer opportunities into WUI projects.

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References

Brenkert-Smith, H., P. A. Champ, and N. Flores. 2006. Insights into wildfire mitigation decisions among wildland–urban interface residents. *Society & Natural Resources* 19:759–68. doi:10.1080/08941920600801207.

Brummans, B. H. J. M., L. L. Putnam, B. Gray, R. Hanke, R. J. Lewicki, and C. Wiethoff. 2008. Making sense of intractable multiparty conflict: A study of framing in four environmental disputes. *Communication Monographs* 75 (1):25–51. doi:10.1080/03637750801952735.

Buechler, S. M. 2000. *Social movements in advanced capitalism*. New York, NY: Oxford University Press.

Cabbert, B. 2016. Cold Springs Fire burns hundreds of acres west of Boulder, Colorado. *Wildfire Today*, July 11. https://wildfiretoday.com/tag/cold-springs-fire/

Calkin, D. E., J. D. Cohen, M. A. Finney, and M. P. Thompson. 2014. How risk management can prevent future wildfire disasters in the wildland–urban interface. *Proceedings of the National Academy of Sciences of Sciences* 111 (2):746–51. doi:10.1073/pnas.1315088111.

Davis, C. B., and R. J. Lewicki. 2003. Environmental conflict resolution: Framing and intractability—An introduction. *Environmental Practice* 5 (3):200–6. doi:10.1017/S1466046603035580.

Devine-Wright. P. 2009. Rethinking NIMBYism: The role of place attachment and place identity in explaining place-protective action. *Journal of Community and Applied Social Psychology* 19: 426–41. doi:10.1002/casp.1004.

Dewulf, A., B. Gray, L. Putnam, R. Lewicki, N. Aarts, R. Bouwen, and C. Van Woerkum. 2009. Disentangling approaches to framing in conflict and negotiation research: A meta-paradigmatic perspective. *Human Relations* 62 (2):155–93. doi:10.1177/0018726708100356.

Elliott, M. 2003. Risk perception frames in environmental decision making. *Environmental Practice* 5 (3):214–22. doi:10.1017/S1466046603035609.

Goffman, E. 1974. *Frame analysis: An essay on the organization of experience*. Cambridge, MA: Harvard University Press.

Greider, T., and L. Garkovich. 2010. Landscapes: The social construction of nature and the environment. *Rural Sociology* 59 (1):1–24. doi:10.1111/j.1549-0831.1994.tb00519.x.

Halpenny, E. A. 2010. Pro-environmental behaviours and park visitors: The effect of place attachment. *Journal of Environmental Psychology* 30 (4):409–21. doi:10.1016/j.jenvp.2010.04.006.

Hennink, M., I. Hutter, and A. Bailey. 2011. *Qualitative research methods*. Los Angeles, CA: Sage.

Kaufman, S., R. Gardner, and G. Burgess. 2003. Just the facts, please: Framing and technical information. *Environmental Practice* 5 (3):223–46. doi:10.1017/S1466046603035610.

Manzo, L. C. 2003. Beyond house and have: Toward a revisioning of emotional relationships with places. *Journal of Environmental Psychology* 23 (1):47–61. doi:10.1016/S0272-4944(02)00074-9.

McCaffrey, S., E. Toman, M. Stidham, and B. Shindler. 2013. Social science research related to wildfire management: An overview of recent findings and future research needs. *International Journal of Wildland Fire* 22 (1):15–24. doi:10.1071/WF11115.

Meldrum, J. R., P. A. Champ, H. Brenkert-Smith, T. Warziniack, C. M. Barth, and L. C. Falk. 2015. Understanding gaps between the risk perceptions of wildland–urban interface (WUI) residents and wildfire professionals. *Risk Analysis* 35 (9):1746–61. doi:10.1111/risa.12370.

Nielsen-Pincus, M., P. Sussman, D. E. Bennett, H. Gosnell, and R. Parker. 2017. The influence of place on the willingness to pay for ecosystem services. *Society & Natural Resources* 30 (12): 1423–41. doi:10.1080/08941920.2017.1347976.

Paton, D., and P. T. Buergelt. 2012. Community engagement and wildfire preparedness: The influence of community diversity. In *Wildfire and community: Facilitating preparedness and resilience*, eds. D. Paton and F. Tadim, 241–59. Springfield, IL: Charles C. Thomas Publisher, Inc.

Paveglio, T., M. S. Carroll, J. D. Absher, and T. Norton. 2009. Just blowing smoke? Residents' social construction of communication about wildfire. *Environmental Communication* 3 (1): 76–94. doi:10.1080/17524030802704971.

Pellow, D. 1992. Spaces that teach. In *Place attachment*, eds. I. Altman and S. M. Low, 187–210. Boston, MA: Springer.

Proshansky, H. M. 1978. The city and self-identity. *Environment and Behavior* 10 (2):147–69. doi: 10.1177/0013916578102002.

Ramkissoon, H., L. D. G. Smith, and B. Weiler. 2013. Testing the dimensionality of place attachment and its relationships with place satisfaction and pro-environmental behaviours: A structural equation modelling approach. *Tourism Management* 36:552–66. doi:10.1016/j.tourman.2012.09.003.

Reiman, B. E., P. F. Hessburg, C. Luce, and M. R. Dare. 2010. Wildfire and management of forests and native fishes: Conflict or opportunity for divergent solutions? *Bioscience* 60:460–8. doi: 10.1525/bio.2010.60.6.10.

Remenick, L. 2018. The Role of Communication in Preparation for Wildland Fire: A Literature Review. *Environmental Communication* 12 (2):164–76. doi:10.1080/17524032.2017.1346519.

Shellabarger, R., M. N. Peterson, E. Sills, and F. Cubbage. 2012. The influence of place meanings on conservation and human rights in the Arizona Sonora borderlands. *Environmental Communication* 6 (3):383–402. doi:10.1080/17524032.2012.688059.

Shmueli, D., M. Elliott, and S. Kaufman. 2006. Frame changes and the management of intractable conflicts. *Conflict Resolution Quarterly* 24 (2):207–18. doi:10.1002/crq.169.

Stedman, R. C. 2003. Is it really just a social construction?: The contribution of the physical environment to sense of place. *Society & Natural Resources* 16 (8):671–85. doi:10.1080/08941920309189.

Tracy, S. J. 2013. *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact*. Hoboken, NJ: Wiley-Blackwell.

Weick, K. E. 1995. *Sensemaking in organizations*. Thousand Oaks, CA: Sage.

Williams, D. R., and J. J. Vaske. 2003. The measurement of place attachment: Validity and generalizability of a psychometric approach. *Forest Science* 49:830–40.